

THE MODEL ENGINEER



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The MODEL ENGINEER

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S M O K E R I N G S

Our Cover Picture

● FOR SHEER perfection of hand craftsmanship, it would be difficult to better the example of the miniature suit of armour which was displayed in the loan section of this year's "M.E." Exhibition. It is the work of Mr. D. L. Butcher of Kettering and it stands 11½ in. high, each piece being hand-beaten from steel and hand-riveted. This magnificent model was also exhibited earlier in the year at the British Industries Fair at Castle Bromwich.

Clubs at the Exhibition

● AMID THE general chorus of appreciation of the "M.E." Exhibition one or two voices have been raised regretting the limited amount of space allotted to individual clubs. As the founder of the club movement in this country, I have always been anxious to give these organisations as much publicity as possible both in THE MODEL ENGINEER and at the Exhibition, and to help them in many other ways. But so far as the Exhibition is concerned there are practical considerations which I think are apt to be overlooked by those who want to see more club stands. One of the chief points is that of expense. To hold a large exhibition in the heart of London is a very different proposition from organising a local show where the rent of a suitable room is almost negligible, and where all the staffing is provided by voluntary help. The organisation of the "M.E." Exhibition requires the constant

attention of an office staff for at least six months in advance and for some weeks afterwards. It calls for the daily supervision of a number of experienced and paid helpers, and for the services of architects, artists, and publicity experts. It involves the payment of a heavy rental for the hall, now running well into four figures, and of big bills for the erection of stands for the display of models and for the accommodation of such clubs as we are able to invite, for posters, printing, lighting, telephones and the hundred and one extras which are inseparable from such a show. The cost of the circular track and water-course alone this year was more than the total expenses involved in many local club exhibitions. On top of all this the Excise authorities extract more than one-third of the turnstile takings for Entertainment Tax. It is, in fact, a very expensive exhibition to stage, and the organisers are committed to an outlay of several thousands of pounds before the doors are opened. Obviously then, free floor space and free stand erection for the clubs to any extent is a difficult economic problem, and much as we desire to give the clubs a good show, our hands are tied by the heavy expenses we have to meet. In spite of this we did, this year, provide free space and stands for ten representative clubs and enabled no less than thirty-one other clubs to participate in the special Club Cup competition. To invite these forty-one clubs to be represented at the show effectively disposes, I think, of any hasty accusation of lack

of interest in our Club friends. The fact is that the national character of the "M.E." Exhibition makes its layout a matter of compromise, so much space for the competition and loan models, so much for the clubs, so much for the trade, and so much for an attractive feature for the public, whether it be a railway track or a circular arena. Now-a-days many clubs run their own local exhibitions very successfully, and get publicity in their own district where it will do them the most good. The "M.E." Exhibition is not a competitor with these local efforts, but is an additional help. It attracts a much larger section of the general public who become recruits to the hobby and in many cases take up membership of the nearest local club. A number of such instances were reported at our recent exhibition and the club movement undoubtedly benefits through the great expansion of model making interest which results from our show. Club executives and members should therefore take a broad view of the objects served so effectively by the "M.E." Exhibition, and not feel aggrieved by the fact that their own particular body may not figure in full and free prominence at the Royal Horticultural Hall. It is the increase of public understanding of the many achievements and virtues of model engineering which really counts, to the benefit of all concerned, and this is what the "M.E." Exhibition is designed to encourage.

A Stolen Model

● IT HAS been reported to me that a valuable model was stolen from among the exhibits at the recent Lymington Carnival Show. The model in question is a 4 mm. scale S.R. Schools Class locomotive, silver-plated throughout; the owner being Flt.-Lt. G. W. Weeks of the Andover Society. If any of our readers should come across this model, either offered on sale, or otherwise displayed, they should communicate with the secretary of the Andover Society, Mr. R. Pemble, 14, Weyhill Road, Andover.

A Comfortable Workshop

● AMONG OUR photographs in this week's issue is a picture of the workshop belonging to Mr. W. Notman of Uplawmoor, Scotland, who also sends us pictures of a very nice vertical steam engine which is one of the productions of his leisure moments. A point to be noted in the workroom photograph is that the motorised lathe is mounted on a kitchen table, and, as a self-contained unit, can be moved about when and where required. The vertical boiler situated in the corner of the room gives a touch of real engineering to the picture, and indicates that Mr. Notman is a talented constructor in more than one direction.

The late Mr. Walter Pollock

● ALL SHIPLOVERS will learn with deep regret of the passing of Mr. Walter Pollock, Chairman of James Pollock & Sons Ltd., Shipbuilders, of London and Faversham. As a shipbuilder, he was responsible for the design and construction of some 3,000 vessels of varying types, but he was a model lover also. As Chairman of the Exhibition Committee of the Worshipful Company of

Shipwrights, he was chiefly responsible for the wonderful display of ship models and marine engineering which was held at the Royal Horticultural Hall early this year, a show which gave delight and instruction to thousands of visitors. Of Mr. Pollock himself, I can truly say a charming personality, a front-rank nautical authority, and a staunch friend to everyone with ships in their blood. His passing, at the age of 74, is a great loss to the shiploving world.

Lloyd's Register Scholarship

● AN EXAMINATION for the award of a Lloyd's Register Scholarship in Marine Engineering, value £175 a year for three years, tenable at a British University, will be held on May 24th to 28th, 1948. Candidates must be British subjects between the ages of 18 and 21, who have been employed in engineering, either as apprentices or as college students, with the intention of entering upon the profession of marine engineering, and have served at least two years in commercial engineering workshops. Apprentices in H.M. Dockyards are not eligible for the Scholarship. Full particulars may be obtained from the Secretary of the Institute at 85, Minories, London, E.C.3.

Steam for Scarborough

● THE North Bay Miniature Railway at Scarborough is at present operated by two petrol-driven locomotives, very successfully from a traffic point of view but in the opinion of the local Entertainments Committee not sufficiently realistic. The younger passengers want some "live steam," and the Borough Engineer has been asked to report on the possibility of obtaining a steam locomotive with an oil-fired boiler, something, in fact, which would emit plenty of steam without the accompaniment of "offensive smoke." The youngsters are great critics, bless their hearts!

A Model at a Wedding

● WHEN TWO members of the Rugby Society of Model Engineers were married recently at the Parish Church, a model taxi driven by the President of the Society drew up at the gateway to bring a charming little girl with a bouquet for presentation to the bride. Truly a model wedding!

P.M. Publications in New York

● A VERY imposing National Crafts and Hobby Show is to be held in Madison Square Garden from November 23rd to the 30th. Model making interests will be largely featured, and on Stand No. 16 four of Percival Marshall & Co.'s journals will be displayed through the good offices of British Publications Incorporated, of New York. We shall hope to make some new friends through this effective introduction.

Percival Marshall

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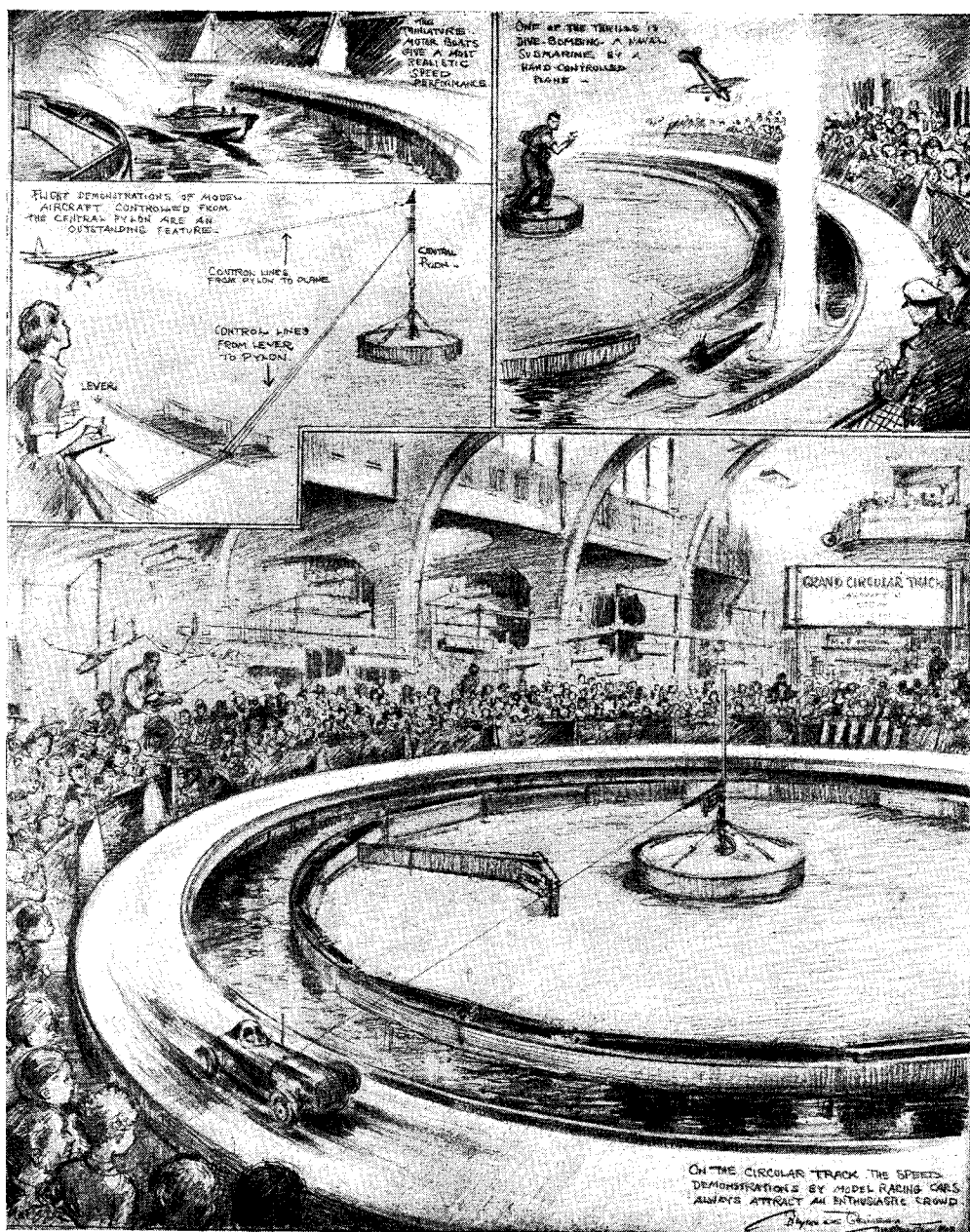
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The Track at the "M.E." Exhibition



(Drawn by Bryan de Grineau and reproduced by courtesy of "The Illustrated London News")

The artist has succeeded in portraying some of the high-spots of the "M.E." Exhibition. Among them is shown the dive-bombing of a submarine; this was made possible by the kind collaboration of the Royal Navy. He has also depicted the spectacular controlled flying demonstration by Messrs.

D. Craufurd, and a model race car hurtling round the track at 40 m.p.h.

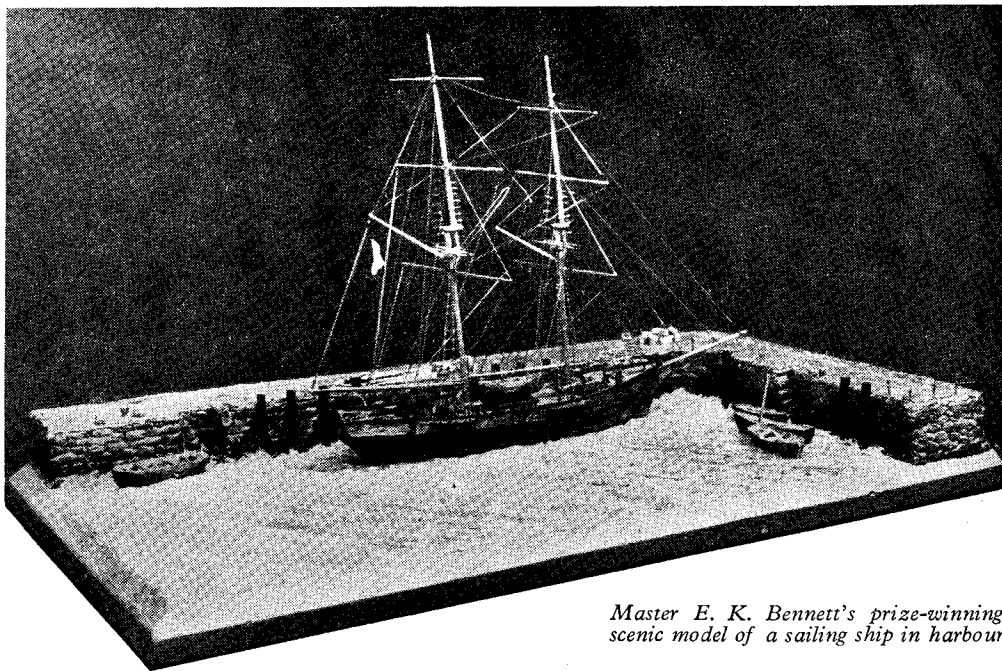
A Judge's Impressions

Mr. Ian Bradley comments on some interesting aspects of the Competition Models

AS some readers will be aware, I had the privilege, and the pleasure, of helping to judge some of the classes in the exhibition which has just concluded, and the Editor has asked me, in my capacity as one of the judges, to give my impressions of those classes in which I was particularly interested.

prize in the class, the more so as the only tools available for the construction were, according to the entry form, "sandpaper, razor blade and file."

The second prize winner, David Marshall (15), of Mill Hill, showed a model of H.M.S. *Victory*, as she appeared at Trafalgar. This was another



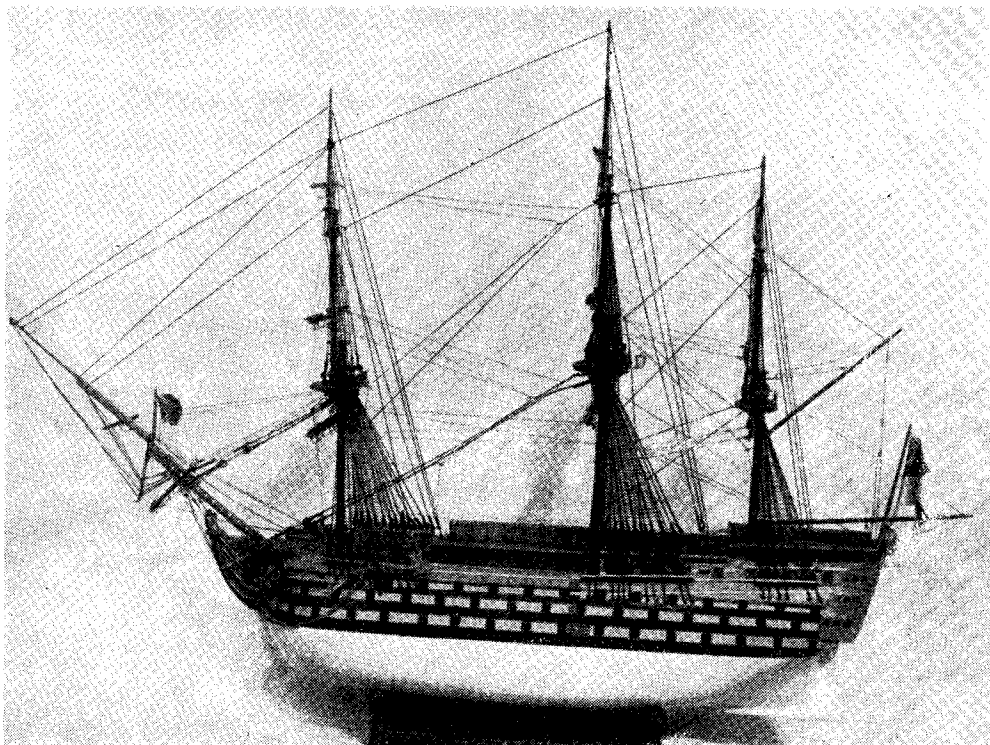
Master E. K. Bennett's prize-winning scenic model of a sailing ship in harbour

For the very good reason that it is always a delight to encourage the younger of our fraternity, I will deal with the juniors first. Their's was an excellent class, and in general showed an attention to detail which is not always associated with the productions of the younger generation.

In this connection, the scenic model of a sailing ship in harbour by E. K. Bennett of West Drayton, was outstanding, and might well have competed very creditably with the work of more experienced craftsmen. Mr. Bennett, who is 16, has, I suspect, paid many visits to the smaller harbours of this island, and he certainly has not done so with his eyes shut. There were the dinghys streaming off from the jetty, the coiled ropes and the pile of dunnage on the quay-side, the three-masted (a most considerable effort in itself) moored alongside, and last, but by no means least, the little pile of dirty foam in the corner of the harbour. A very neat point this. On every count the judges had no hesitation in awarding this exhibit (No. 260), the first

example of painstaking work, and I was glad to see no attempt had been made to hurry the job, but that all details had received due care and attention. Well done, David Marshall, a very tidy and pleasing piece of work; many seniors could, with advantage, learn something of the value of patience from your exhibit, and we shall look forward with interest to other models from your shop.

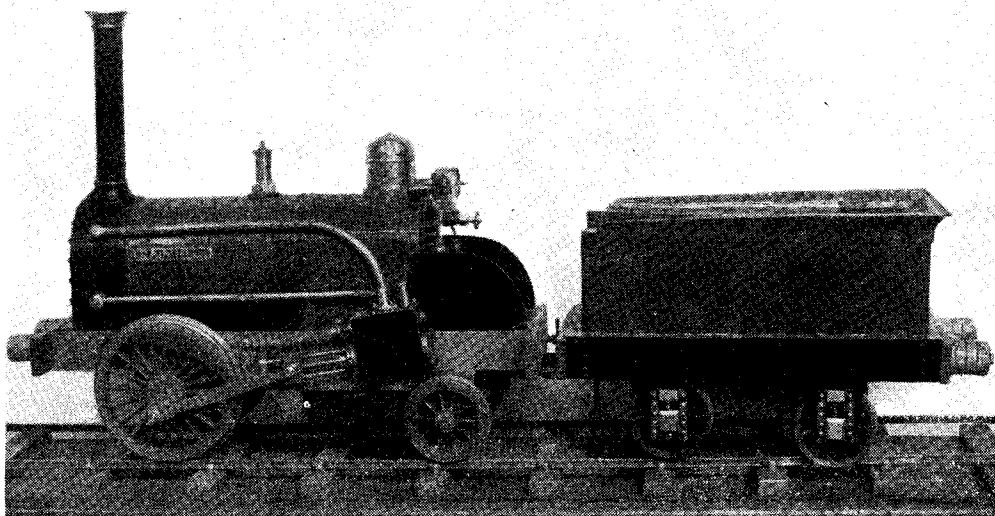
The third-prize winner was also by a 15-year-old, L. W. Warnett, of Wirelsfield, who showed a working model of a "Rocket" type locomotive. This was evidently to "L.B.S.C.'s" "Rainhill" design, and was a most creditable example. Whilst it was clear that the works stores had at one point run out of hexagon-head screws for the steam-chest and had been forced to issue round-head ones, no attempt had been made to conceal this fact and the judges were not disposed to be critical in a matter which was probably the direct responsibility of the Ministry of Supply.



Master David Marshall's model of H.M.S. "Victory" as she appeared at Trafalgar

The workmanship was good ; in fact, it was a good deal better than some seen in other classes, and it augurs well for the quality we may expect from L. W. Warnett as he gains more experience.

A special prize and a special comment go to Rodney Shields for the work done on a home-made lathe. A useful man to have around. Do you want serviette-rings? Send for Rodney
(Continued on page 341)



Master L. W. Warnett's working model "Rocket"-type locomotive

The 1947 Prize Winners

Championship Cups

Locomotives.—J. I. Austen-Walton, of Worthing, 1-in. scale model, 5-in. gauge L.M.S. coal-fired locomotive and tender. Type 5XP, "Centaur."

Steamer Cup.—D. McNarry, of Barton-on-Sea. Water-line model of Union-Castle liner "Stirling Castle."

Sailing Ships.—J. F. Alderson, of Pontypool. Rigged sailing ship model.

General Section.—G. E. Hartung, of Gravesend. Compound condensing engine.

Club Cup.—Worthing & District Society of Model Engineers.

Bombay Cup

A. B. Hancock, of West Wickham. Model first-rater 100-gun medieval warship, circa A.D. 1700.

Silver Medals

E. Kench, of Northampton. Model 3½-in. gauge, 3-cylinder "Royal Scot."

A. W. G. Tucker, of Bramhall. Model 3½-in. gauge, ¾-in. scale coal-fired passenger-hauling locomotive.

J. McCreesh, of Buckhurst Hill. Model of 3-h.p. refrigeration condensing unit.

H. Smallbones, of Andover. Tasker Portable 6 h.p.

M. Longridge, of Epsom. Model 4-mm. scale, 18-mm. gauge, G.W.R. rolling stock.

D. J. Unwin, of Cambridge. Model 1½-in. scale showman's compound road engine.

G. C. S. Seymour, of Southwick. Model Austin 12 h.p. heavy 1929 model.

I. W. Marsh, of Barry Docks. Model tea clipper, "Sir Lancelot."

F. W. Shippides, of Portishead. Opium clipper, "Nymph."

L. V. See, of Portsmouth. Displacement boat express cruiser, "Atomic II."

E. N. Taylor, of Gosport. Water-line ship model.

K. P. Lewis, of Birkenhead. Model of Canadian Pacific liner "Empress of Australia."

W. H. Honey, of Tulse Hill, S.W.2. Scenic model of barque "Lalla Rookh."

F. E. Backshell, of East Sheen, S.W.14. Petrol-driven model of 1937 Mercedes-Benz Grand Prix.

J. S. Eley, of Leeds. A gear-cutting machine.

F. G. Bettles, of Taunton. Model road locomotive.

C. B. Reeve, of Hastings. An eight-day escapement regulator clock.



The cups and medals that were competed for at the "M.E." Exhibition

Bronze Medals

W. G. Dennis, of Harlesden, N.W.10. A 1½-in. scale 0-4-0 saddle tank locomotive.

N. E. Nicholson, of Sheffield. A 3½-in. gauge L.M.S. Pacific, "The Princess Royal."

K. J. Leeming, of Rugby. L.N.E.R. Gresley class "K3" 2-6-0 locomotive and tender, No. 2458. Scale 7-mm. to 1 ft.

P. B. Denny, of London, W.3. Model of Stoney Stratford Station.

G. Heywood, of Halifax. Model of a Stratford-upon-Avon and Midland Junction Railway 0-6-0 locomotive and tender, scale 7 mm. to 1 ft.

F. Smith, of Pinxton. Old type coal winding gin—horse-driven.

R. Elliott, of Abbey Wood, S.E.2. Model L.P.T.B. tramcar, class E/1-rehabilitated type.

J. E. Bosley, of Enfield. Constructional model showman's three abreast gallopers.

G. Miller, of Southgate, N.14. Full hull model tea clipper, "Cutty Sark."

Mrs. Iris McNarry, of Barton-on-Sea. Water-line model of a Thames Sailing barge.

A. Greenwood, of Romford. Hull and fitting only of R.A.F. air-sea rescue launch.

W./Cmdr. J. F. Lewis (Retd.), Craven Arms. A ½-in. scale model of Vosper A.S.R.L.

G. F. Campbell, of Streatham, S.W.2. Water-line model of Mersey paddle tug, "Wrestler."

D. S. Drury, of Sheffield. Scenic model, "Coral Seas," comprising gunboat H.M.S. "Magpie," 1889.

L. Glass, of Bristol. Model Elizabethan galleon.

J. R. Mann, of Northampton. Power-driven, shaping machine.

F. B. Read, of Nottingham. Model traction engine based on "M.E." design.

D. C. Wray, of Edgware. Model hermaprodite cart, Lincolnshire.

A. Beaumont, of King's Lynn. Model of standard coasting steamer.

Diplomas

Very Highly Commended.—29 awards.

Highly Commended.—27 awards.

Commended.—16 awards.

Junior Section

First Prize.—E. K. Bennett, of West Drayton, Scenic model of sailing ship in harbour.

Second Prize.—D. Marshall, of Mill Hill, N.W.7. Model of H.M.S. "Victory" as at Trafalgar.

Third Prize.—L. W. Warnett, of Wirelsfield. Working model of a "Rocket" type locomotive.

Vee-Block Prize

P. F. Haynes, of Oxford. A MODEL ENGINEER drilling machine.

Model Aircraft Awards

A complete list of prize winners in the Model Aircraft Sections is announced in the September issue of "Model Aircraft."

A Judge's Impressions

(Continued from page 339)

Shields, aged twelve-and-a-bit. Or are you needing ash-trays, or butter-dishes? Well, send for the same chap; and if there is any difficulty about a lathe on which to do the job, R. Shields will call upon his senior partner, Dr. Clive Shields. Then between them and for about five shillings the required apparatus will be constructed.

The exhibit showed that the use of hand-tools in turning is not being allowed to become a forgotten art, and was an admirable exposition of this fact.

The other class on which I should like to make some observations, is Class No. 13, Tools and Workshop Appliances. Whether it was the number of the class that put people off I do not know, but the entries were surprisingly small, though of quite a high standard. There must be quite a lot of toolmaking being done in model engineering shops, in fact, I know there is, so that it ought not to be difficult another year to get a bigger and more representative entry.

The first prize went to Mr. Eley, of Leeds, for his gear-cutting machine. This was outstanding for design and workmanship, though the finish was severely utilitarian. The judges had no difficulty in making the award of a silver medal for this very ingenious device.

Mr. Mann's power-driven shaping-machine was a well deserved second prize winner, and was awarded a bronze medal. I was somewhat surprised to find that the tool-slide and clapper-box were case-hardened. As this is not normal procedure, one wonders what were the considerations which called for this treatment of these components. Mr. Mann, who is a production engineer, has obviously been able to call upon his shop experience in designing this very well proportioned machine, and he is also to be complimented in selecting a most competent welder to handle the fabrication of the main frame for him. Altogether a first-class production which will undoubtedly greatly enhance the facilities of Mr. Mann's workshop.

Mr. Kydd, of Gloucester, showed a miniature set of engineer's tools and tool box, which were very highly commended. They really were perfect miniatures, and as one would imagine, might prove of great use for instructional purposes. Or, perhaps, Mr. Kydd is thinking of a model of the ideal amateur's workshop. Carried out to the scale of the tools shown in the exhibit (No. 202), the idea would appear to have distinct possibilities. What about it, Mr. Kydd?

A Rebuilt Stuart-Turner Engine

by W. Notman

THIS engine, a 2-in. bore by 2-in. stroke, from Stuart-Turner castings, was rebuilt by the writer after acquiring same in a very poor state as "discount" in a model engineering transaction.

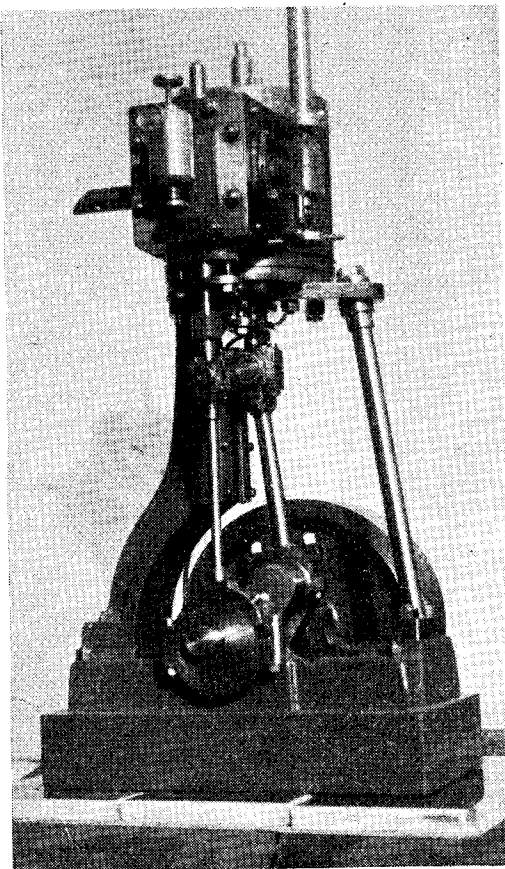
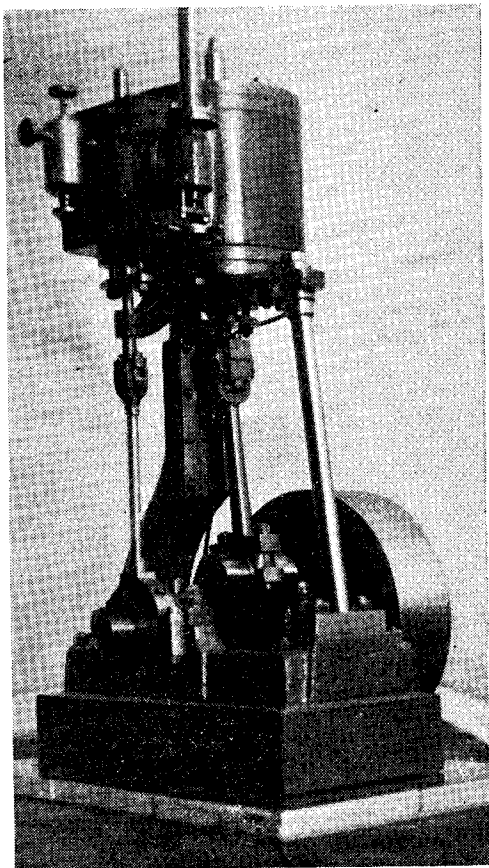
The engine was originally of the double-column type, but the writer prefers the single column, both on the ground of appearance and because the semi-circular crosshead and guide could never be got to work quite silently, there always being a slight knock. One column was

therefore scrapped and the other faced up flat, slide bars were fitted and the crosshead built up to suit.

The flywheel is a disc-type 5 in. diameter \times $1\frac{1}{4}$ in. broad on face. Split brasses were fitted to crosshead. The engine now runs very smoothly and quietly.

Boiler

This is about 12 in. diameter \times 24 in. high, with 12 fire-tubes 1 in. diameter, believed to be



Two views of Mr. W. Notman's rebuilt Stuart-Turner vertical steam engine

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made by Goodhand. The shell is $\frac{3}{16}$ -in. plate, the ends $\frac{1}{4}$ -in.

It steams well on anthracite, small pieces of railway coal, or house coal, but the tubes require cleaning frequently when using the latter. It is principally used for experimental work on injectors and safety-valves, and with banked fire will keep a good head of steam for several hours. An extension chimney is fitted when running. The injector has a No. 76 delivery cone, and feeds about $8\frac{1}{2}$ oz. of water per minute.

high and they discharge enough steam to prevent accumulation of pressure.

The gauge glass allows variations of water level of about $3\frac{1}{2}$ in.; to raise the water level 1 in. takes about 6 minutes' application of the injector.

The Workshop

The lathe is a $3\frac{1}{8}$ -in. "Winfield," mounted on an ordinary wooden kitchen table, strengthened on the top and stiffened by cross braces.

The motor is $\frac{1}{2}$ h.p. "Century" repulsion start



Mr. Notman's "home" workshop

It is fitted in the lifting position and always works 10 or 12 in. above its water supply. It is a sliding-cone type, the lower half of the combining cone moving down $\frac{1}{64}$ in. to permit of automatic restarting and lifting. The steam cone is No. 66; all the cones are 5 deg. taper. A 200-mesh filter is fitted on the intake.

The steam valve is the only control necessary to operate the injector. Half a turn is sufficient to lift the water, and a further quarter turn causes it to feed into the boiler. If the water in the feed tank falls below the level of the injector suction pipe, steam blows from the overflow, but as soon as the level is made up above the suction pipe it will immediately restart, without any loss of water, and without reducing the steam supply.

The safety-valve is incorrect in respect of body shape; it is a locomotive type, being a copy of a Ross valve.

It pops open fully after showing a small feather and shuts tight with a drop of about $\frac{1}{4}$ lb. pressure. A safety-valve with similar action but a side outlet body built up to resemble a casting has been fitted since the photograph was taken. These valves are only $\frac{1}{16}$ in. bore, but the lift is

and rests on the spars of the table. Countershaft is at the back, and the whole outfit is self-contained and can be moved as required; also, the domestic authorities or self can sweep under it. The resistance box at end of table is to operate a drilling-machine motor, unfortunately not in picture. This motor is an old d.c. shunt machine bought for 5s. before the war, and rewound and run as a series a.c. motor. Consequently, it is not altogether suitable for drilling-machine drive and a ready hand or knee has to be kept to turn off the tap when the load is taken off. It is nominally $\frac{1}{2}$ h.p., but on a.c. is only capable of drilling up to about $\frac{1}{8}$ in. It can be moved and placed at the back of the lathe for driving milling spindle or cutters.

When the writer first acquired this lathe he needed some screwcutting B.S.P. 19 to the inch and spent a long time working out the nearest to this, which, if memory is correct, was about 18.86 per inch, with the usual 25, 30, 35, 40 change wheels, etc.

This misfit thread was made to serve for a long time until it was noticed that there actually was in the set, on the board before him, a 38 wheel provided for cutting 19 t.p.i.!

Home-Made Tool-Post Grinder

by H.C.W.

OFTEN, the wheels of the home workshop are set in motion by the acquisition of some particular piece of mechanism which just cries out to be put to some better purpose than that for which its maker designed it.

In the present case, it all started off with an old vacuum cleaner. Now the home mechanic can think of any number of purposes to which

in a proper grinding machine. While the truth of this assertion cannot be denied, there are a great many of our fraternity for whom the lathe must be an all-purpose machine and with care, there is no reason why grinding should not be done on it occasionally without undue wear. It is, perhaps, best to run the lathe in reverse and have the grinder with the same rotation;

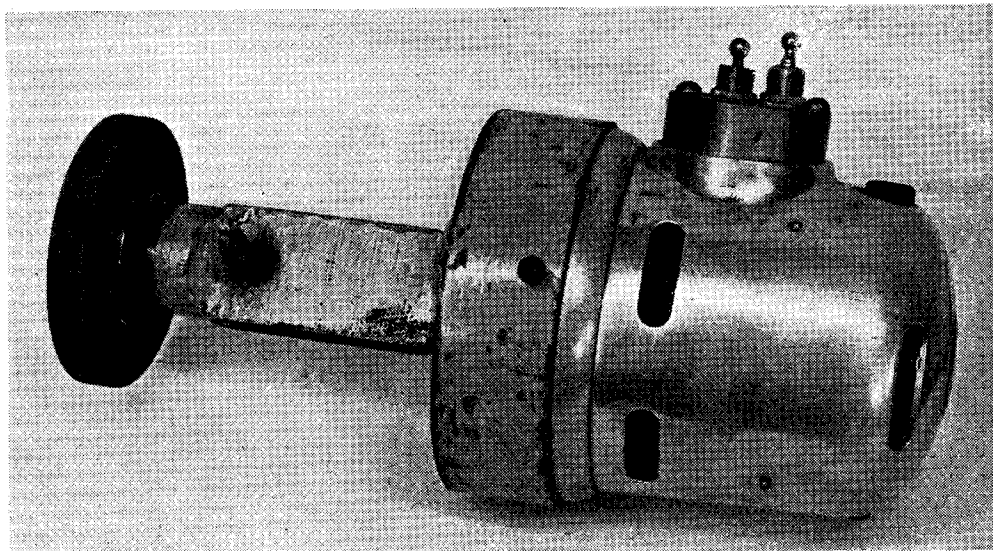


Photo by]

The home-made tool-post grinder complete

[Eric Meyer

such a thing can be put, all of them much more useful than the original domestic application. It can be used as a paint sprayer, or in conjunction with an old oil drum, it can be pressed into service as a blast furnace for the home foundry. It will provide forced draught for getting recalcitrant locomotive boilers up to steam and a whole host of other things.

[N.B.—If any reader requires further arguments to strengthen his claim to the domestic vacuum cleaner, the author will be pleased to supply them on application being made *via* the Editor. All requests will be treated as strictly confidential.]

The present case was made much easier by the fact that the domestic requirements were already met by a much more modern instrument and it was decided to apply the old machine to the purpose of grinding in the lathe.

Now there are some who loathe the tool-post grinder. They maintain with some justification that a lathe can soon be ruined by the stone dust which settles over everywhere. They go on to argue that grinding jobs can best be done

then, if the slides are covered with a cloth to catch the wheel dust which will be blown down on to it, this will not get so much all over the place as it does when the lathe rotates normally and the products of grinding are shot up into the air.

Construction

The construction of a tool-post grinder will depend in detail to some extent on the materials available in the way of a motor, ball-bearings, etc., but the author's design is given in the hope that it may be helpful in deciding the best way to carry out the job. Since the motor in question had a spigot which fitted into the main casting of the cleaner, located with three screws, the obvious attachment was a ring into which the motor would fit in the same way. This was made by bending round a strip of steel, welding it into a ring and then skimming up the inside surface to the size required to fit the motor spigot. Next, four steel strip arms were welded to a steel bar, the bar set true in the lathe and the tips of the arms machined to fit in the back of the ring housing. This was then welded in position

and a piece of round bar was welded to the other end for a main bearing housing. This completed the main fabrication. The device was drilled right through for the shaft and the housings for the ball-races were machined. With regard to the suitability of ball-bearings for this job, the article by "Don," on page 47 of THE MODEL ENGINEER for July 10th, should be consulted.

The flexible coupling has two driven pins at twelve o'clock and six o'clock, which have wide clearance in the driving half-coupling, and two driving pins at three o'clock and nine o'clock,

it can be used as a bench grinder, if one is not already available in the workshop, and to this end a reversing switch has been fitted as well as an on-off switch. However, this may be regarded as a disadvantage, for one must be careful not to mistake the reversing switch for the "off" switch.

Electrical Connections

The usual vacuum cleaner motor will be found to be connected, as in Fig. 2, and it is only necessary to fit a double-pole double-throw switch,

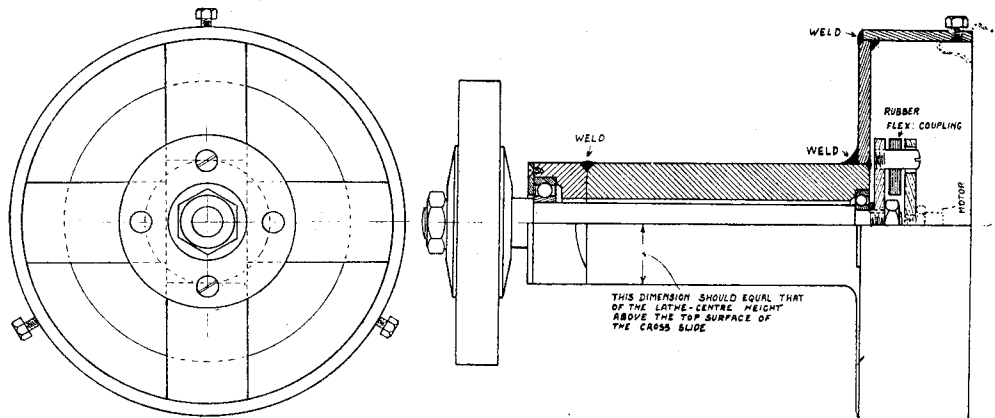


Fig. 1

which have wide clearance in the driven half-coupling. All four pins are a push fit in the rubber ring which goes between the two halves and through which the drive is transmitted. The details of this and of the spindle will be seen in Fig. 1. The completed article appears in the photograph.

For use in the lathe, the grinder is clamped down to the top surface of the slide and it is as

as in Fig. 3, in order to reverse it. Similarly, if a reversing switch is not desired, but the initial rotation is the wrong way, just reverse the connections to the commutator.

A grease nipple should be provided for the main spindle and also a cover-plate at the front end to keep the dust out of the main bearing.

Stones are sometimes purchased with a plain hole in the centre which is too large for the

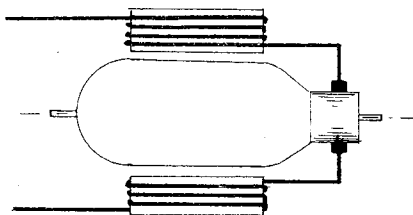


Fig. 2

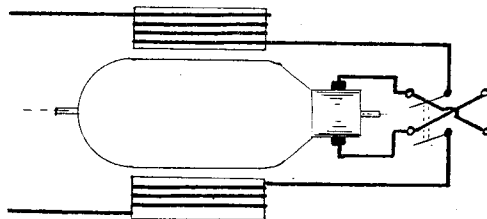


Fig. 3

well to bear this point in mind in the early design stage, since the distance from the slide surface to the centre-height of the lathe will set the distance from the spindle centre to the bottom surface of the steel bar which forms the main part of the grinder. (See Fig. 1.) Failure to observe this may mean that when completed, the grinding centre would be found to be higher than the lathe centre. When held in the vice

particular spindle. In this case the hole should be filled with molten lead and, with the stone gripped lightly in the external jaws, the lead should be faced up, centred and drilled through to the correct size. Turn the stone round and face the lead on the other side.

It will be found that, when completed, this tool will considerably increase the scope of the all-purpose lathe.

THE GUILDFORD REGATTA

IN pre-war days, one of the most pleasant regattas of the season was the one held by the Guildford M.Y. & P.B.C., on the pond in Stoke Park, Guildford.

The power-boat section of this club makes up in enthusiasm what it lacks in numbers, and the regatta held on Sunday, August 17th, turned out quite as successful as those of former days.

The regatta was well supported by the Victoria, Blackheath, Malden, Orpington, and Southampton clubs, besides the home club.

The Victoria club had chartered a lorry for the journey, so were present in good numbers, including several well known enthusiasts complete with boats, and the Blackheath club loaned their electrical timing-gear for the speed events.

The opening was a 40-yd. nomination race for free running craft, which produced about a dozen entries.

All the boats taking part in this event behaved quite well, and several boats ran close to the nominated times. The best of these was Mr. Phillips (Victoria), with his well-known cruiser

Kenvera, followed closely by Mr. Benson (Blackheath), with *Comet*, Messrs. Whiting (Orpington), and Chew (Victoria), also had fairly close estimates with *Cherie* and *Pixie* respectively.

Result—

1st—Mr. Phillips (Victoria), *Kenvera*; error, 0.4 sec. 4 per cent.

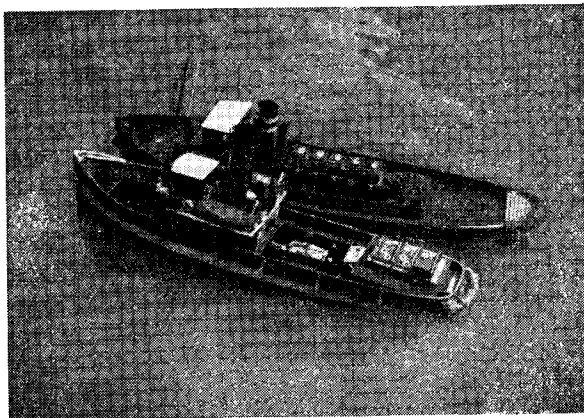
2nd—Mr. Benson (Blackheath), *Comet*; error, 0.45 sec. 6.6 per cent.

As the regatta had started a little late is was decided to have a short lunch interval before the next event. Most of the competitors had provided themselves with picnic lunches, and blowlamps from various boats were pressed into use for the purpose of boiling kettles!

The steering competition was the next event,

and the winner of this event would hold the Guildford Steering Cup for one year.

The course looked an easy one, but on the whole the steering was not too good. Mr. Benson (Blackheath), with *Comet*, succeeded in scoring an inner, outer and lastly a bull, total, 9 points ;



Messrs. Evans Bros. steam tug "Marina," and Mr. Brown's I.C. tug "Sir Roger"



Mr. Marsh preparing "Sea Devil III," which won second place in Class A.



What happened to "Ifit's" propeller shaft as the result of a capsizing



Mr. Whiting with his steam yacht "Rose Marie"

the next best were Messrs. Whiting and Chew, who tied with 4 points each, after two re-runs the position was still the same and it was decided to give an extra prize in this event.

Result—

- 1st—Mr. Benson (Blackheath), 9 points, *Comet*
 2nd—Mr. Whiting (Orpington), 4 points, *Rose Marie*; and Mr. Chew (Victoria), 4 points, *Pixie*.

The pole for the speed events was fixed in position, and the first event for the speed craft was a mixed event for B. & C. class hydroplanes, over 300 yds.

Thrills

Thrills were provided in this race by several boats. Mr. Jutton (Guildford), with *Vesta*, after accelerating faster as each lap was completed, capsized on both attempts, and so did Mr. Weaver's boat, *Wizard of Oz*, at the end of an otherwise successful run. Mr. Heath (Victoria), *Derive*, still has that bad-luck bogey and could not get a complete run on any of his attempts.

Mr. Martin (Southampton), with *Tornado IV*, gave a fine show on his first run, on which a speed of 33.7 m.p.h. was attained, the second attempt however, did not produce such a good speed.

Results—Class B.

- 1st—Mr. Martin (Southampton), *Tornado IV*, 18.2 sec., 33.7 m.p.h.
 2nd—Mr. Benson (Blackheath), *Erg*, 29 sec., 21.2 m.p.h.

Class C.

- 1st—Mr. Weaver (Victoria), *Wizard of Oz*, 22 sec., 27.8 m.p.h.
 2nd—Mr. Miles (Malden), 42.8 sec.

Flash Steamers

The last event was a 600-yd. race for Class A boats, and produced four flash steamers and two petrol engined boats, the two latter, however, were withdrawn, due to engine trouble, leaving the flash steamers to fight it out amongst themselves.

Mr. Lines (Orpington), whose flash boat, *Blitz II*, generally manages to break something, put up an excellent run, averaging 30.8 m.p.h.; Mr. Marsh (Southampton), with *Sea Devil III*, bettered this at 32.5 m.p.h.

Mr. Cockman (Victoria), with his famous *Ifit VI*, really got cracking, but had a nasty capsize, damaging the propeller shaft and steam pipe; this put him out of the running, and Mr. Pilliner (Guildford), secured first place with *Ginger*, with a speed of 36.4 m.p.h. The others could not better their times on the second attempts, in fact, Mr. Marsh's boat ended with the cylinder-head nearly red-hot!

Result—

- 1st—Mr. Pilliner (Guildford), *Ginger*, 34 sec., 36.4 m.p.h.
 2nd—Mr. Marsh (Southampton), *Sea Devil III*, 37.8 sec., 32.5 m.p.h.

At the prize-giving which followed, the prizes were presented to the successful competitors by Mrs. Pilliner, and this pleasant event signalled the end of yet another successful regatta held under the auspices of the M.P.B.A.



Mr. H. R. Puntis, of Southampton (left) investigating engine trouble with "Firefly 3"

SHIP MODEL PROTOTYPES

No. 2. Deep Sea Motor Trawler "Thorina"

by E. Bowness

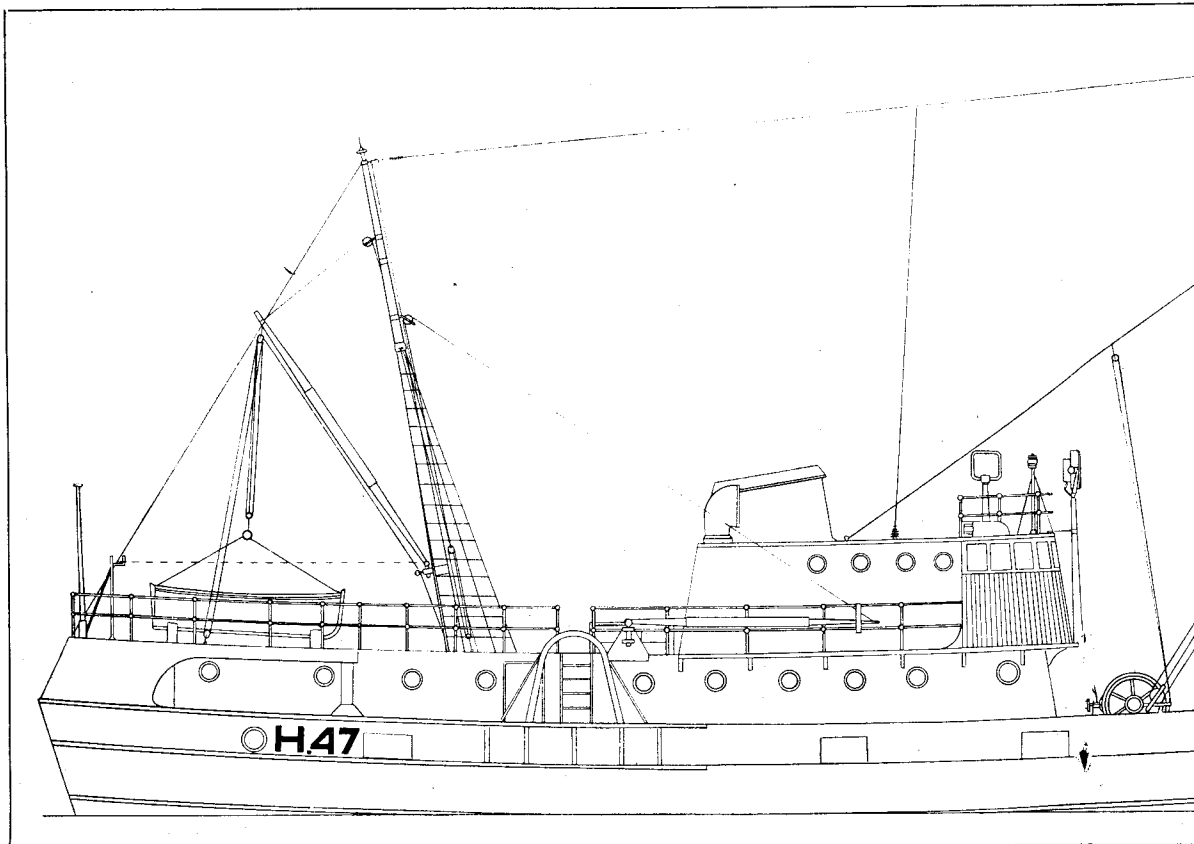
FOR the second of our ship model prototypes we have chosen a modern deep-sea motor trawler. For a working model the trawler is hard to beat. The hull of the prototype must be seaworthy to a degree, as it is one of the smallest ships to operate in deep water at the present day. When its flared bows and somewhat exaggerated sheer are reproduced in miniature, they give a form which is able to cope with the heaviest gales ever likely to be experienced in a pond. Incidentally, the thrill of sailing a seaworthy model under stormy conditions on a pond has to be experienced to be realised.

Another advantage of the trawler as a prototype is that its relatively small size enables one to use a relatively large scale for the model. Thus, the model of a trawler 120 ft. long can be built to a scale of $\frac{3}{8}$ in. = 1 ft., in which case the model is only 45 in. long, which is very reasonable for a working model. At this scale every detail

can be reproduced and nothing need be omitted either in deck fittings or in rigging details on the score of difficulty of manufacture. With a beam of 9 in. and a draft of 4 in., which is practically correct to scale, the displacement would be about 32 lb. This can be adhered to easily with either a metal or a wooden hull and an orthodox power plant.

The trawler *Thorina*, which we illustrate in our photograph, is one of the latest and finest of its type. One misses the more usual turtle deck over the fo'c'sle head, but this is more than compensated for by the fine sweep of the sheer-line, the raised fo'c'sle head, the raked stem, the modern stern, and the smart appearance generally.

This ship was built by Messrs. Cook, Welton and Gemmell Ltd., Beverley, Yorkshire, who have specialised in modern deep sea trawlers and the smaller coasting vessels. Her dimensions

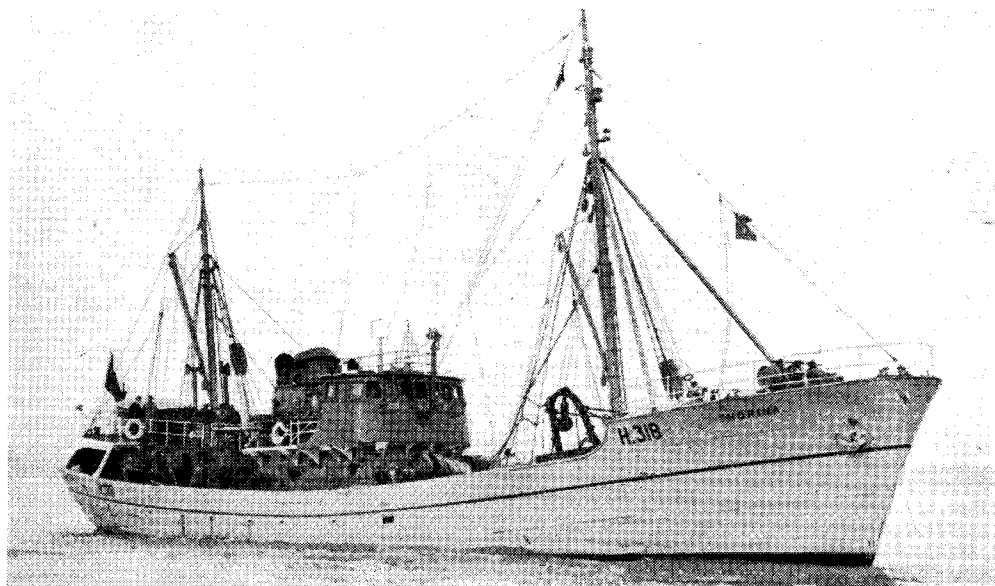


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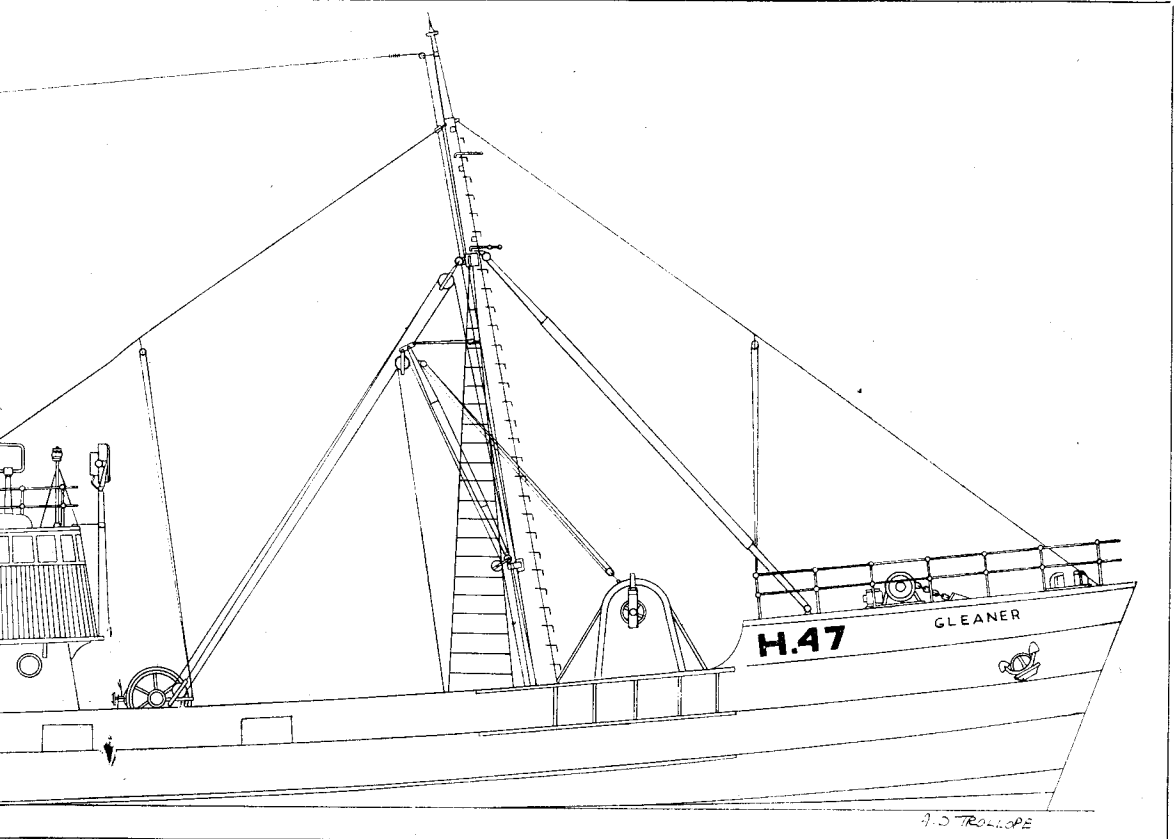
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"Thorina" on her trials



are: 137 ft. overall, 133.5 ft. between perpendiculars, 25.5 ft. breadth, and 13.5 ft. depth of hold. The hull lines are based on an exhaustive series of tank tests at the National Physical Laboratory, Teddington. The main engine is a Crossley 8-cyl. two-stroke type of 600 b.h.p. running at 340 r.p.m., with reduction gearing to the propeller.

The accommodation for the officers and crew is located aft and is on the most modern and most comfortable scale. It is light and airy and is heated and ventilated according to the latest standards. New plastic materials are used for decoration and insulation. Washrooms and showers are provided and also a drying room for wet clothes and a locker for oilskins.

These deep sea trawlers operate from Hull, Grimsby and other East Coast fishing ports, sailing north to cruise off the coast of Iceland.

The conditions are severe for both ships and men, and call for a hull form for the ships which is able to ride out the fiercest gales, often under very severe temperature conditions.

We have recently added to our series of ship model designs a trawler of a somewhat similar type to *Thorina*. The hull lines of *Thorina* have not been published, but we have worked out a design which will give the appearance of the prototype and at the same time prove capable of a good performance on the pond under all conditions. We reproduce herewith to a reduced scale, Sheet No. 1, of the set of three sheets. Sheet No. 2 of the set gives the hull lines, and Sheet No. 3 gives details of the deck layout and the fittings. The set is now available from THE MODEL ENGINEER Offices, and is published at the price of 8/6 post free.

New Plans for Ship Modellers

THERE have been many grumbles in the past from builders of prototype working model ships, that suitable designs for their particular branch of model engineering were hard to come by, and usually rather out of date.

To alleviate this trouble in some measure, Messrs. Percival Marshall & Co. Ltd., have recently commissioned Mr. A. D. Trollope to prepare a series of designs for prototype models, based on typical modern vessels, of a size suitable for the average model maker to build. Mr. Trollope, apart from being a keen model engineer, has been closely connected with shipping and shipbuilding for over thirty years, and has recently returned to London after serving during the war years with one of the largest machine tool makers in the country.

The designs have been prepared to suit all tastes, and in most cases are built round a particular power plant for which drawings and materials are readily obtainable, though any alternative suitable plant can be used.

As a "follow up" to these designs, Messrs. Percival Marshall have also in course of preparation a complete text-book covering in general form, the whole field of prototype ship-building. This book, which will be fully illustrated, by photographs and diagrams, will be on sale as soon as the present production difficulties allow. The complete range of designs available are as follows:—

PB6—"Seamaid," Hard chine displacement launch. 48 in. o.a. Scale of model, 1 in. to a foot. Scale of drawing, half size. Engine, M3, M4 (below). Four sheets, profile, hull lines, full-sized sections, with constructional booklet. Price 12s. 6d. (Additional sheets showing alternative superstructures are in course of preparation.)

PB7—"Karrier," motor coaster. 24 in. o.a. Scale of model, 1/2 in. to a foot. Scale of drawing, full size. Electrically-driven super detail Three sheets, profile, lines and details. Price 8s. 6d.

PB8—"Mermaid," motor yacht. 50 in. o.a. Scale of model, 1/2 in. to a foot. Scale of drawing, half size. Engine, Westbury "1831" or "Seal." Five sheets, profile, full-sized sections, lines, details. In preparation.

PB9—"Gleaner," motor trawler. 50 in. o.a. Scale of model, 3/8 in. to a foot. Scale of drawing, half size. Engine, Westbury, "Seal." Three sheets, profile, hull lines and details. Price 8s. 6d.

PB 10—"Titan," ocean going tug. 48 in. o.a. Scale of model, 1/2 in. to a foot. Scale of drawing, half size. Engine, M3, M4 (below). In preparation.

PB 11—"Dunkirk," cross-Channel passenger ferry. 56 in. o.a. Scale of model, 5/16 in. to a foot. Scale of drawing, half size. Engine, M3, M4 (below). In preparation.

PB12—"Windsor Castle" passenger liner. 72 in. o.a. Scale of model, 1/2 in. to a foot. Scale of drawing, half size. Engine, Westbury, 4-cylinder (in preparation). This model is intended for the skilled shipbuilder and will represent the latest type of passenger liner. It will make an outstanding model for the real enthusiast, without being too large. In preparation.

M3—2-cylinder single-acting piston valve engine. 3/4-in. bore, 1/2-in. stroke. Drawings are full size. Four sheets. G/A, detail, accessories. Castings available. Price 10s. 6d.

M4—Steam generator. G/A and detail. Two sheets, full sized. Price 6s. A fast steaming boiler for the PB6 and similar vessels.

M5—Atmos. burner for above. One sheet, full sized. Price 3s. A silent blue flame burner of high efficiency for petrol or paraffin.

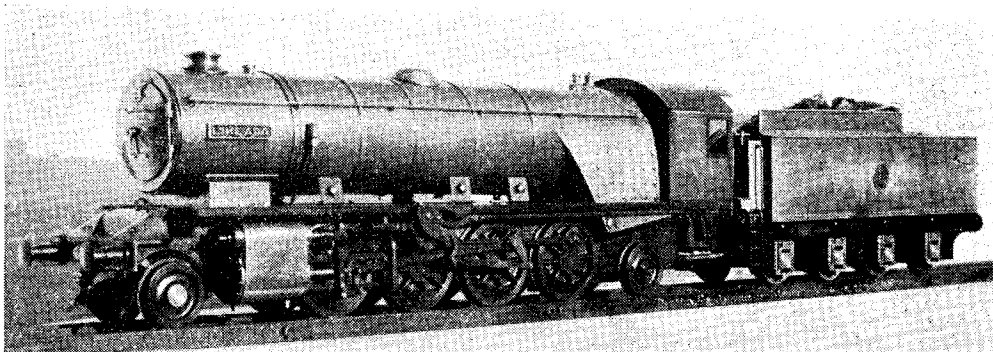
— "L.B.S.C." —

A Friendly Rival to "Mustang"

IF there is one thing your humble servant likes to see more than another, in any walk of life, it is a bit of keen, honest-to-goodness friendly competition, such as existed in the old days among the cleaner boys on the L.B. & S.C.R. as to who should turn out the cleanest engine, or among the drivers and firemen as to who should head the monthly coal-premium list. Incidentally, if the National Coal Board offered to pay

in the cupboard, which were stacked in chronological order.

He then purchased a copy of the *Railway Gazette*, which contained a description of the ten-coupled "Ada," with photographs and line drawings all complete. Next job was to get a piece of three-ply 5 ft. 6 in. long and 2 ft. high, fix some drawing paper on it, and—by kind permission of Mrs. Turpin—hang it on the



A real "Live Steamer" by Mr. H. J. Turpin

"coal-money" on the old Brighton system, to the enginemmen of every railway in this country, it might bring results that would astonish them; but "officialdom" never seems to think of anything like that! Anyway, the subject of this week's notes was the direct result of the competitive spirit, for when the vice-chairman of the Enfield and District S.M.E., Mr. H. J. Turpin, read the account of Mr. Marshall's famous 2-8-2 "Mustang," and what she could do in the way of speed and haulage, it set him off with a longing to "go and do likewise," and build a locomotive that would pull a really big load of kiddies, and keep in steam for hours at a stretch without any trouble. He achieved his desire, and here is all about it.

Genesis of "Likeada"

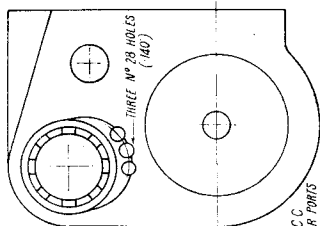
Mr. Turpin's first choice fell upon the ten-coupled "Ada," but in 3 1/2-in. gauge. Since no description of such an engine had so far appeared in that size, he set to work to design one, incorporating all "Live Steam" specifications. His first job was to wade through ten years of Curly's notes, and make a complete index of all descriptions of components; for example, all the boilers under "B," with the dates of the issues in which they appeared. Cylinders under "C," lubricators under "L," and so on, were all tabulated, so that if our friend wanted to refer to any particular part of any engine, all he had to do was to consult his index, then pull the requisite number from the pile of "M.E.'s"

picture rail in the dining room. On this was set out the outline of the engine, scaling down the full-size dimensions to 3 1/2-in. gauge. The various descriptions of boilers, cylinders and other parts were then looked up in the index, and sorted out until something suitable was found for the proposed engine; this was then added to the outline on the drawing board, modifications being made wherever the original either didn't suit the job as it stood, or did not fall in with our friend's views on that particular adaptation, though strict adherence to "Live Steam" principles was his motto all through.

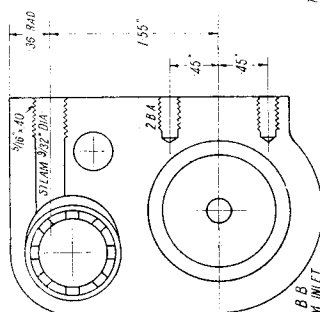
Exit the Trailing Coupled Wheels

Mr. Turpin favoured the "Green Arrow" type of boiler, but on applying it to his design, found that he would be able to get only about 3/8 in. depth of fire at the front end. As he preferred an inch or so, he bid a fond farewell to the trailing pair of coupled wheels, and put a small pair of carrying wheels in their place, which did the trick. He also decided on piston-valve cylinders, because there is less load on the valve-gear than if large slide-valves are used—they have less joints also—and fancied Baker valve-gear, for the same reason that I like it, *viz.* no slotted links and die-blocks; a pivoted action with no die-slip. He also wanted the valve-gear to go completely below the running-board, which is O.K. with Baker, because it doesn't matter, within reason, where you put it. Several other minor changes were made; and he also thought

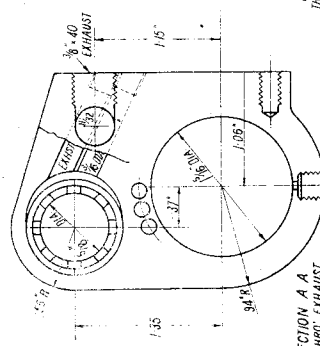
“Likeada” details of cylinders



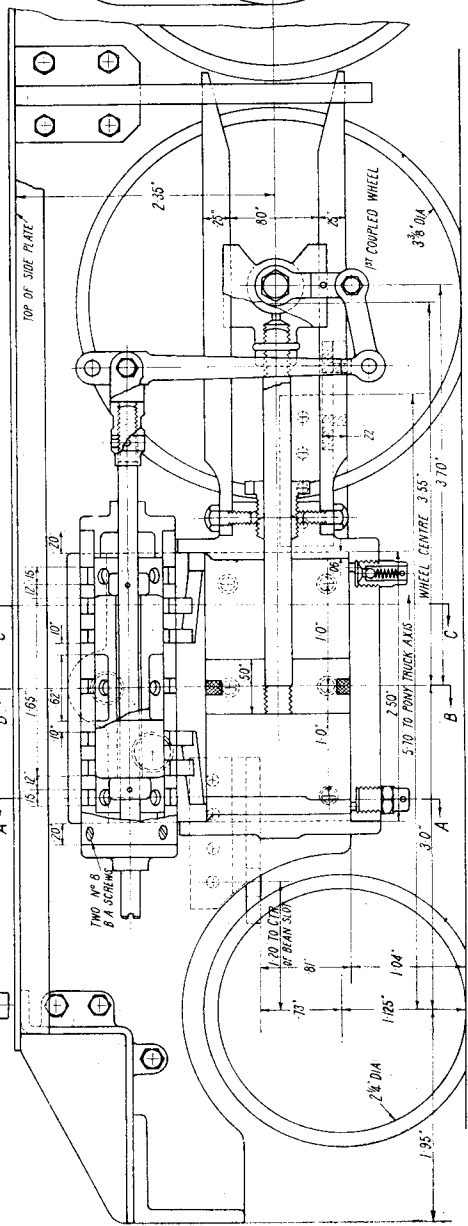
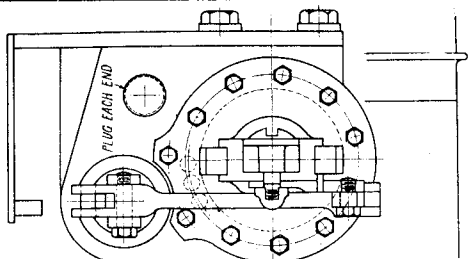
SECTION CC
THRU CYLINDER PORTS

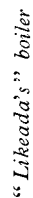


SECTION B B
THRU STEAM INLET



SECTION A A
TURBO EXHAUST





that if he called the engine "Ada," Inspector Meticulous and his friends and relatives would say it wasn't "Ada" at all, so decided to call it "Likeada," because it was just that. I reckon myself he pulled a bit of a boner there; considering the well-known moniker that he bears, and remembering the exploits of the famous Dick of the same name, the most suitable name for the engine would have been "Black Bess"! In passing, that reminds me of another childhood episode which will doubtless raise a smile among those of our fraternity who keep clamouring for more "Curly tales."

"Dick Turniptops" Meets His Fate

You'll probably recollect that the children of the late 'eighties used to play trains and stage-coaches with mailcarts; and when the evening stage-coach made its London-Edinburgh trip—twice around the block—it was invariably held up and "robbed" by a highwayman, complete with three-cornered hat, black mask, and a huge horse-pistol. "Dick's" toll was a couple of marbles, or buttons, from the boy passengers, and a kiss from the girls. He was a handsome boy, and a born actor; the courtly way he assisted a girl off the coach, very gracefully bowed, and politely asked her pardon for requesting his toll, would have got him a job on the films, if there had been such things in those days. I might add that the girls never hesitated about paying! "Jasper Shrig" and his "Bow Street runners" made frequent attempts to catch Dick red-handed, but that worthy was mighty artful, and always carried out his nefarious work between two street lamps. Any old reader who recollects Victorian street-lighting, will know that it was pretty dim between lamp posts, and the light from either of them would have enabled Dick to spot any "period cops" bearing down on him, and enable him to escape. He laughingly boasted that he would never be caught, but spoke out of his turn for one evening "Jasper Shrig" had a brainwave, which brought about Dick's downfall—"crime never pays!"

A Strong "Doll"

All the children knew, of course, that Curly, although a "living doll," was as physically strong as any two of them; and it came to pass that when the coach set forth on its journey, young Curly, wearing a coat and hat belonging to one of the girls, was on the front seat. It was duly held up; but when the highwayman, misled in the dim light by the coat and hat of his best girl friend, who also had long fair curls, went to perform his Hollywood act, I just put my arms around him, kissed him, and then said softly in his ear, "Don't wriggle, Dicky, this is Curly, and you're going to hang on Tyburn." Poor Dick said "Crikey!" and resigned himself to his fate. The Bow Street runners popped up from an adjacent area, carted him off, and he was tried right away under a tree in his own front garden. The sentence was hanging (as per the history books) but as no rope was available, the executioner asked Dick's mother if he could borrow her clothes-line. She naturally asked what for, and on being informed it was to hang her boy, she laughed and said, "All right, but don't get break-

ing my tree down," and produced the rope. Dick was solemnly hanged—with the rope under his arms—and passed out very well, but then completely spoilt the effect by opening his eyes and calling out, "Hey! hurry up with the funeral; crumbs, I ain't half getting pins and needles!" Children in those far-off days had to provide all their own entertainment, but were never at a loss, seldom got into mischief, and seemed far more happy and contented than their present-day confreres. Well, after that little interlude, let's get back to Mr. Turpin's engine.

Interesting Details

After completing the general arrangement to his satisfaction, our friend made some detail drawings of the essential working parts; boiler, cylinders, pumps, regulator and so on. The boiler, as mentioned above, is the same general type as that specified for "Green Arrow," but arranged to suit the ten-coupled "Ada's" dimensions for $3\frac{1}{2}$ -in. gauge; but readers who are conversant with my latest practice, will spot the fact that the superheating is insufficient. There should have been four flues and four elements, as in the "Lassie's" boiler. This is borne out by our worthy friend's statement that he has realised this, the exhaust being wet; he can feel a wet spray if the exhaust steam blows into his face when the engine is running. He is taking measures to increase the superheat.

The two cylinders are $1\frac{1}{16}$ -in. bore and $1\frac{1}{2}$ -in. stroke, and are somewhat similar to those described as suitable for a $3\frac{1}{2}$ -in. gauge "Class 5" L.M.S. 4-6-0; but there are two steam ports at each end of the valve liner. Steam enters the bore *via* the inner port, and exhausts by the outer port, the valve bobbins being as long as if the two ports were just one big port only partially opening. This is shown in the drawing, the idea being to enable the long bobbins to be used, with a longer wearing period than a short bobbin. The materials of which piston valves and liners are made, reverses the usual practice, the liners being rustless steel, and the valves bronze. Mr. Turpin considers that the bronze would show the most wear after a period of service, and it would be easier to renew valves than liners. The valve-spindle is extended through the front steam-chest cover, so that it can be turned with a screwdriver when setting valves under pressure with the cylinder cocks open. The cylinders are not lagged, as the bores are as big as the castings will possibly allow.

A Special Valve-rod

The valve-gear being placed so low down, Mr. Turpin made a special type of valve rod to connect the bell-crank with the valve-spindle, with a long slotted extension to clear the bell-crank; but he need not have gone to that trouble, as the Baker gear works all right with an inclined rod. In any case, the relationship between the bottom of the bell-crank and the top of the combination-lever must necessarily remain the same, whatever the shape of the rod between. I always recollect wondering, when a kiddy, what was the idea of having a sort of spiral connection between the flywheel spindle of a travelling knife-grinding

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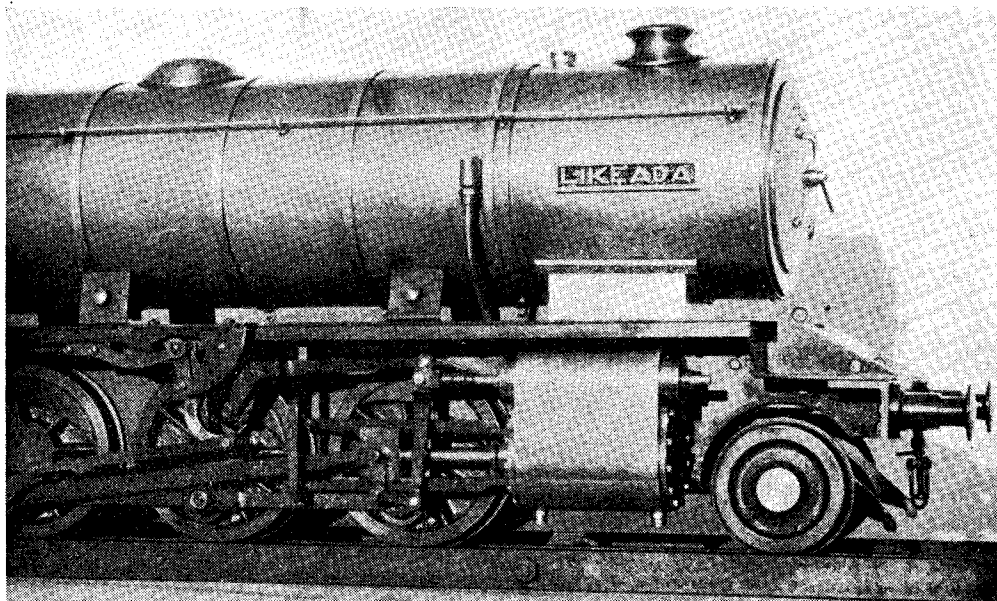
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merchant's box of tricks, and the crankpin to which the pitman or connecting-rod of the pedal-gear was attached. I still don't know to this day, as an ordinary crank works just as well.

The time taken to build the engine was eighteen months, using every spare minute available; and this was good going, considering that Mr. Turpin's machining facilities consist merely of an old 3-in. lathe and a small drilling-machine. Everything that could not be tackled by those

The Chingford track is a continuous one, about 350 yards long, with a station. Mr. Turpin says that when leaving the station with a full load, he usually has about a quarter-glass of water, but a full head of steam. The engine is started slowly, but gradually opened out, and the pump by-pass closed, as the blast gets busy and livens up the fire. By the time the engine has covered the first hundred yards, the water is up to half-glass; she then settles down to a steady



"The Works"

items of equipment, had to be done by hand; links, rods, and other parts were cut with hacksaw and file. The only jobs not done at home, were the brazing of the boiler and making the pressure gauge.

On the Road

The greatest trouble is to keep the boiler quiet; our friend says it makes quite enough steam for a third cylinder. *What* a different tale from the old days, when a boiler which maintained steam with the engine running light, was considered a marvel! Steam can be got up sufficiently to work the blower, in four minutes from all cold, and a little longer sees the gauge-needle at the blowing-off pressure, 80 lb. Unless the firehole door is opened, the safety valve will blow off every time the regulator is shut. A typical example of how the engine behaves, is her performance on the Chingford fete day, July 12th last, when she was in steam for six hours continuously, and never lost pressure. On that day she covered over eleven miles, and carried 187 passengers, not counting the driver. Since she started work last May, the mileage is over fifty, and the passengers carried will soon be in the four-figure category.

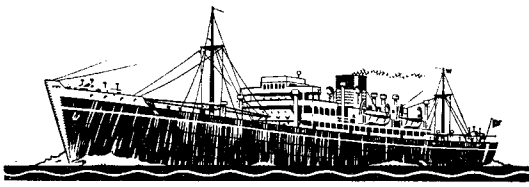
pull, and by the time the next hundred yards are covered, the water is three-parts up the glass. The last bit around to the station is on a rising gradient, and this is taken with the by-pass open a little, the firehole door being opened if the safety-valve starts blowing off. The engine stops with a small but clear fire, which then receives a fresh dose of "Phurnod" ready for the next time around. Mr. Turpin is lucky to get that particular kind which doesn't cake and leaves very little residue; also, there is very little soot deposited in the boiler tubes.

Regarding lubrication, the oil consumption is rather on the lavish side, but this is a good fault, especially in a small locomotive with piston-valve cylinders, as a film is always maintained between the bobbins and liners, which acts as a sort of "oil packing" and forms a perfect steam seal, as well as counteracting wear and tear. As I've remarked before, oil is cheaper than cylinders!

A Possible "Dust-Up"

Mr. Turpin doesn't state what the engine's maximum hauling power is, nor her highest speed; but judging by the dimensions, she

(Continued on page 359)



★ The 36 in. model cargo-passenger liner "PENANG"

by L. W. Sharpe

DECK details of the *Penang* will be fairly comprehensive for a model 36 in. long, particularly in cargo-handling gear, for all prototypes of the class are built to carry a pretty hefty amount of cargo which must be handled speedily at ports of call. Incidentally, the new Canadian Pacific "Beaver" class vessels have no less than 20 electric winches.

It has often been suggested that too much

will carry foremast, winches, hatches, samson posts, and rigging could also be removable, the only snags being the fo'c'sle ladders, the fore and fore-topmast stays. The ladders could follow a practice not uncommon and be set in the fo'c'sle deck, either athwartship or for'ard and aft as will be illustrated later on in this series of articles, so that they do not foul any movement of the fore deck. The forward

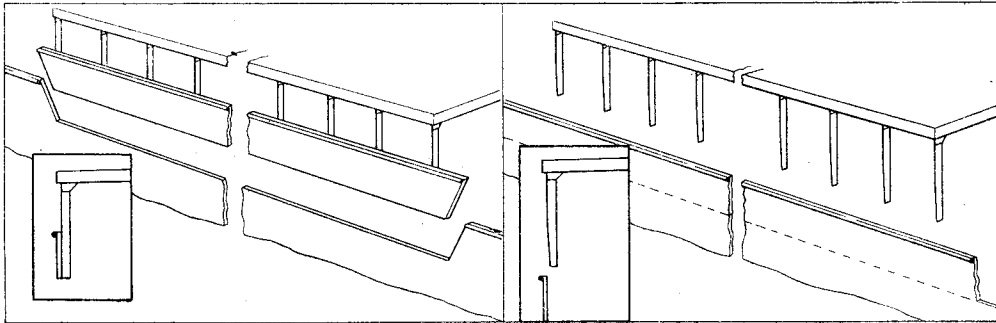


Fig. 22. Two methods of fitting boat deck stanchions

detail in a model is difficult to handle, but I see no reason why a model should not look as realistic as possible, provided that good design in the arrangement allows for easy removal. Practically all the "bits and pieces" on a vessel of 36 in. can be fitted as deck sub-assemblies. For instance the fo'c'sle deck equipment of fairleads, bow-stoppers, windlass and ventilators can all be fixed in position on the deck, which will rarely need to be moved. The weather deck from break of fo'c'sle to the fore end of bridge deck, which

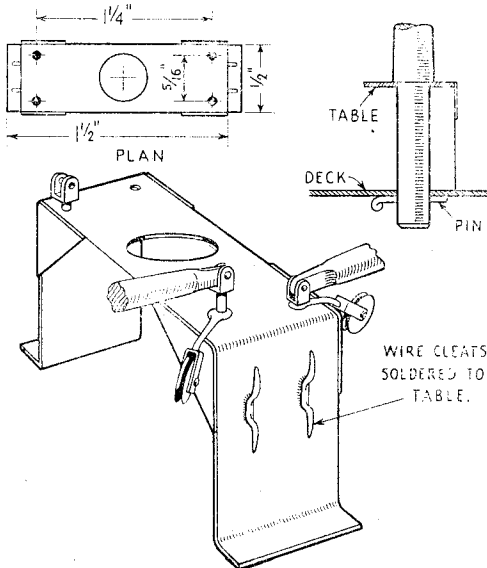


Fig. 23. Mast table details

derricks can be housed in a crutch just clear of the foremast hatch coaming without touching the fo'c'sle deck, and the shrouds and backstays may be attached to small lugs or rings near the edge of the removable deck. Thus the only remaining gear which needs must be unshipped is the rigging, and detachable hooks on the fore and fore-topmast stays engaging a ring or a central hole in the tie plate would take care of this problem.

The bridge, and by this I mean the whole length of the midship structure, is built of light gauge metal, and includes No. 3 hatch, winches, engine and boiler-room casing complete with

*Continued from page 321, "M.E.," September 18, 1947.

funnel, ventilators, engine-room skylight and water tanks, and 28 stanchions at each side. The latter can be fitted in two ways (see Fig. 22), either complete with the bulwark, in which case this is cut fore and aft of bridge to correspond with a similar cut in the fixed weather deck bulwark, or the whole length of bulwark is fixed and the stanchions are part and parcel of the boat deck, set back slightly so as to fit just inside the bulwarks. All such deck stanchions

should go. It may be possible to drill a small hole through which a wire forming a ring above and another below the derrick could be passed to take the topping lift and cargo block. This hole should be $\frac{3}{32}$ in. to $\frac{1}{8}$ in. from the head, for nothing looks worse to the seaman than derrick heads projecting far beyond the cargo blocks and topping lift shackles. It is true that Cunard practice does do this to a certain extent, but not enough to be unsightly.

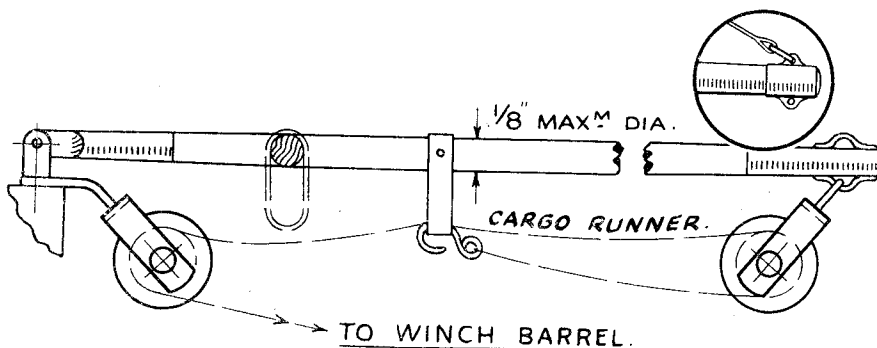


Fig. 24. Derrick details

are fitted with beam knees which, if they can be incorporated in a model would afford a welcome degree of rigidity and prevent any awkward fouling when the bridge is being replaced. Both methods are illustrated.

The boats will each be mounted on a light metal base just wide enough to carry the Welin davit frames, and located by two pins engaging in holes in the deck, so as to be sufficiently firm under normal sailing conditions to stay put, yet easily removable when required. The after weather-deck is also complete with similar gear to that forward, and here again the only snag is the means to be adopted for removing the main and main topmast stay. Sailing conditions will mean leaving the triatic or jumper stay and W/T aerial at home, unless an afternoon's steaming up for fuel and water replenishment.

Derricks

Dealing with the foremast gear first, which mounts four derricks. The bottom ends (heels) are supported on a sheet-metal table, cut so as to leave a flat strip on each side for soldering to the deck. The mast should be a good tight fit in the table, and slightly reduced in diameter for about 1 in. where it enters table and deck so that the height cannot vary. Pinning just under the deck will lock it in position. (Fig. 23.) Beech is excellent wood for masts, because it is fairly strong, scrapes cleanly for tapering and can be pin drilled safely. Construction of the 14 derricks allows for several alternatives. Aluminium rod, tapered a little and flattened for $\frac{1}{8}$ in. at the heel, gives a nice finish and saves weight, but is an awkward customer when one comes to attach the wire at the head, unless aluminium solder can be coaxed to just where it

Beech or oak derricks make a sound job if the drilling is done before shaping, to avoid any risk of splitting the wood. (Fig. 24.) A touch with a small file is the easiest method of flattening the heel, and here is a tip for those brave enough to raid a work basket! A No. 10 or 11 knitting needle of the coloured composition variety is about right for diameter, easy to drill and file, and the whole outfit for the vessel weighs next to nothing, while No. 5's of the same family make excellent samson posts. The supporting swivels at the heels, known as goosenecks, are easily made from brass strip, and can be either bushed as shown, or screwed to take a nut underneath. Bushing is suggested merely as a means of keeping the goosenecks in an upright position, for if one likes to swing the derricks (and who doesn't) they may easily work loose. At sea, of course, the derricks are housed or rather lashed, in the crutches. If they are required to swing, pennant tackle (pronounced taykel) guys must be fitted, but that is another story.

Cargo Blocks

The fitting of goosenecks and cleats should be done before the table is bent to shape, thereby saving a deal of intricate fitting, and the complete table can then be shipped aboard as a sub-assembly. Presentable cargo blocks make a tremendous difference to a model vessel's appearance, and while these mean a lot of "watch making" on a small scale, the result should well repay the time cost. Two types are shown (Fig. 25), one detailed from straight brass strip forming a strap, the alternative being rather more difficult to shape, but much to be preferred. In the illustration the wire connecting the block to the gooseneck is rather

too long, and should be much shorter. On shipboard the topping lifts run from the derrick heads, through the cross-tree blocks, down to lead blocks shackled to the deck and finally to the cleats. This is a simplified rig for model purposes which can be further reduced by cutting out the lead blocks or using rings or lugs in the deck. The next instalment of these articles

neck of brass strip soldered on, and wire shackles to take the cargo runners.

The $\frac{1}{16}$ in. from gooseneck base to sheave centre on all derricks can be shortened to $\frac{1}{8}$ in. if tools available will allow, for all these fittings are necessarily over scale size, and extra skill expended in reducing them will add to the final effect.

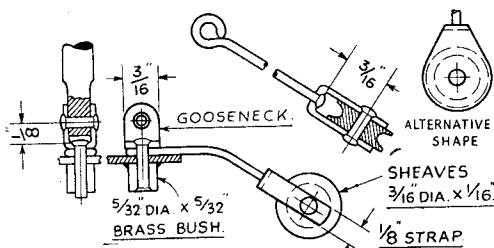


Fig. 25. Derrick heel mounting and cargo block details

will include more information on derrick gear and tackle.

Derrick Mounting

The derrick heel mounting on actual samson posts generally takes some form of welded hinge, two of which are shown in Fig. 28. That on the left is a simple affair with an ordinary bolt and nut. The other is a more advanced design wherein the bolt incorporates a gooseneck, and the central extension has a plate to hold the block in a horizontal position. I have illustrated

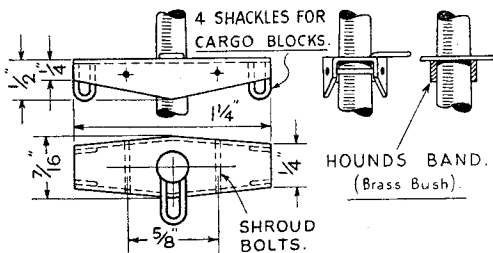


Fig. 27. Details of cross-trees

Crosstrees

Now for the crosstrees, which is the generally accepted term for the platform some distance up the mast which supports the cargo blocks. Variations in design are legion, so I have adopted a fairly common type with one top plate and two side members, all tapered. (See Fig. 27.) By using a hardwood former one can make them without recourse to soldering, and in any case a former is very useful for holding the side members in position if the fabricated method is

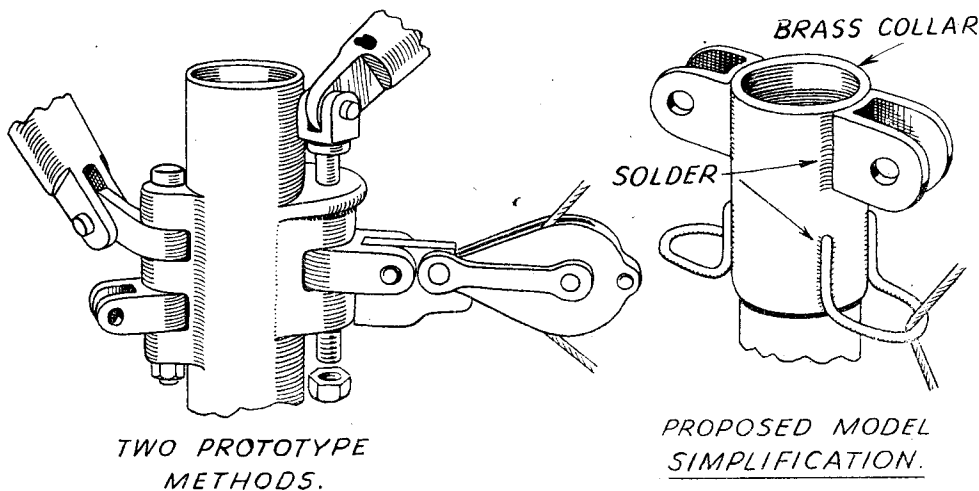


Fig. 26. Samson post derrick mounting

these prototype methods in some detail, so that builders who hanker after correctness will have some information on which to work; for those who do not care to go to such minute detail, however, a simplified suggestion is also shown. This consists of a brass collar about $\frac{1}{16}$ in. or $\frac{1}{8}$ in. long, with a non-swivelling goose-

used. Both forward and main crosstrees have seven attachments, four wires bent "U" shape underneath for taking the topping lift blocks, another in centre of top plate for the forestay, and two shroud bolts. The brass bush supporting the crosstrees (which on a big sister is called the hounds band) can be pinned to the mast, prefer-

ably by hounds shrouds manner interest ratlines seldom purely

Derrick

The fore-t stays v in a Crutche and si stow de always mounti smaller Perhaps suitable made f and br left out

should famous quicker slide va two en up"; I know too ple ada" to "Must Chingfo the No Croydo the Bri to Wil "clock ticking the eng my mi with a coaches when y Knollys a few y the tria enough the terr but look same as with the came fr "Nobo Hill spu

ably by a pin going fore and aft through both hounds band and side members. The three shrouds per side are attached in any convenient manner to the shroud bolts, and in passing it is interesting to note that ratlines are now very seldom seen except on purely passenger vessels.

Derrick Crutches

The anchoring of the fore-top and back stays will be dealt with in a later instalment. Crutches of many shapes and sizes are used to stow derricks in a horizontal position, which is always the case at sea. Some are just stout rods mounting a half ring and braced with one or two smaller rods at an angle, others are more elaborate. Perhaps the type illustrated in Fig. 28 is as suitable as any for a model, because it can be made from light brass strip with cross-pieces and bracing wires. The cross-pieces can be left out if preferred, in which case pin drilling

to take the wire stays is all that is necessary. The feet of the main frame can have pointed extensions for a wood deck or right-angled rectangular feet for either pinning to wood or soldering to metal. The height should be sufficient to rest the booms in line with the deck, and these may be parallel to each other or converging at their ends. Half-round plate crutches are fitted on the after derrick table to take the booms of the third pair of samson posts.

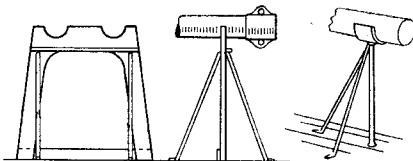


Fig. 28. Double and single derrick crutches

I quite forgot to mention in this instalment that masts are usually parallel up to the cross-trees, and then begin to taper up to the truck. The reason is to provide ample strength for the strains and stresses set up by the derricks when working cargo. Above the cross-trees, of course, the necessity for such precautions disappears.

(To be continued)

A Friendly Rival to "Mustang"

(Continued from page 355)

should be quite equal, if not superior, to the famous "Mustang," the piston-valves giving quicker and freer admission and exhaust than slide valves. It would be interesting to see the two engines having a good friendly "dust-up"; maybe, it could be arranged some time, as I know the lads of Malden village would be only too pleased to welcome Mr. Turpin and "Likeada" to their line, whilst Mr. Marshall and his "Mustang" would be equally welcome at Chingford. Reminds me of the old days when the North Western engines ran through to East Croydon every hour or so from Willesden, and the Brighton engines frequently went through to Willesden. We always called the former "clockwork trains," on account of the loud ticking noise made by the vacuum-pump whilst the engines were running. I can still see them in my mind's eye—lively little black 2-4-2 tanks with a short block set of "chocolate-cream" coaches. They were running in the far-off days when young Curly used to watch the trains at Knollys Road, West Norwood, and passed within a few yards of his point of vantage overlooking the triangular junction of Tulse Hill. Strangely enough, he never resented their intrusion into the territory of his "very own" beloved railway, but looked on them as friendly interesting visitors, same as the green 4-4-2 tanks of the L.S.W.R. with their "liver-and-bacon" carriages, that came from Ludgate Hill *via* the line known as "Nobody's Darling" (the Herne Hill-Tulse Hill spur) and passed along the lower part of the

valley on their way to Wimbledon. Happy memories—what would I give to be back in those days!

A Dull Finish

Mr. Turpin says he does not intend to paint the engine, as all the steel parts have been rendered black and rustproof by a phosphate process, and the brass and copper work is being allowed to mellow naturally. When wiped down with an oily rag, the dull finish is not at all displeasing. In case anybody with an extra eye for beauty, should criticise the shape of the chimney shown in the photographs, I'd better tell them right here, that "Likeada" now sports a Great Western chimney. Mr. Turpin himself says he originally aimed at producing a "Green Arrow" chimney, but it didn't work out according to plan, and one or two friends found fault with it, so he has "gone Great Western" as an antidote to the austerity stovepipe. Well, our worthy friend certainly deserves congratulation on his efforts, having produced an engine that "looks the berries and does the doings." The old ballad tells us that Dick Turpin's steed took a rider from London to York without a rest, and his namesake's steed could also cover the distance if a 3½-in. gauge line were available between the two cities; though the mechanical one might not attain the maximum m.p.h. of the catsmeat variety, it is pretty safe to assert that she wouldn't be as tired out at the end of the journey!